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NATURAL HISTORY MISCELLANY.

BOTANY.

TENACITY OF LIFE AMONGST THE HIGHER PLANTS.—Specimens of *Lewisia rediviva*, a Portulacaceous plant, large-flowered and fleshy, growing in British Columbia, Oregon, and California, will grow, although they have been dried and in the herbarium for two or three years; and indeed the samples are often troublesome from sprouting whilst between the papers. One species, collected by Dr. Lyall, of the British Navy, was “immersed in boiling water” to stop this growing propensity, before submitting to the drying process, and yet more than a year and a half afterwards it showed symptoms of vitality, and in May, 1863, it produced its beautiful flowers in the Royal Gardens at Kew. — *Quarterly Journal of Science*.

REMAINS OF PLANTS AND ANIMALS IN A BRICK TAKEN FROM THE PYRAMIDS OF EGYPT.—Professor Unger has communicated to the Imperial Academy of Sciences, at Vienna, a paper on the vegetable and animal remains and relics of manufacturing art, contained in a brick taken from one of the Egyptian pyramids. He examined a brick from the pyramids of Dashour, which dates back from between 3,400 and 3,300, B. C., and found imbedded in the Nile mud or slime of which it is composed, animal and vegetable remains so perfectly preserved that he had no difficulty whatever in identifying them. Besides two sorts of grain he found the following familiar plants, *Pisum arvense*, *Linum usitatissimum*, *Raphanus raphanistrum*, *Chrysanthemum segetum*, *Euphorbia helioscopia*, *Chenopodium murale*, *Bupleurum aristatum*, and *Vicia sativa*. The brick contained chopped straw, thus confirming the account of the brick-making given in Exodus. The manufacturing relics consisted of fragments of burnt tile, pottery, and a small piece of twine spun from flax and sheep’s wool, significant of the advance which civilization had made more than 5,000 years ago. Prof. Unger thinks that by a careful examination of a large number of bricks, much light may be thrown on the civilization of ancient Egypt. The bricks also contained abundant remains of fresh-water shells, insects, fishes, etc. — *Quarterly Journal of Science, London*.

ZOOLOGY.

FISH CULTURE.—In the International Exposition of the Produce and Implements of Fisheries, at Bergen, were collections of young

fish, illustrating the development of the Cod, presented by M. O. Sars; of the Herring, by M. A. Boeck; and of the Trout, by C. Vogt. A series of designs were also exhibited representing the history of their development, from the vesicular state (l' état vésiculaire) in the egg, up to the moment of exclusion, and the different aspects of the fish from the time of birth to adult age. Next the drawings were placed jars containing specimens illustrating the different stages of growth. Several bottles, containing specimens illustrating the process of the artificial fecundation of the Cod, discovered by M. O. Sars, comprised:

1. Eggs of the Cod artificially fecundated, three or four hours after the operation, and showing the beginning of the divisions of the germinative disk (*disque*);
2. Eggs artificially fecundated, eleven or twelve hours after the operation, and showing the division of the germinative disk;
3. Eggs artificially fecundated, after two or three days, showing a greater division of the disk;
4. Eggs after four days of incubation, showing the perfect division of the disk;
5. Eggs eight days after artificial fecundation, showing the embryo already well formed;
6. Eggs sixteen days after artificial fecundation, showing the young fish (*alevin*) perfectly developed, and after the rupture of its envelopes;
7. Young Cod born the seventeenth day after artificial fecundation.

— *Bulletin de la Société d'Acclimatation*.

BISCUIT MADE OF FISH.—Professor Rosing, of Aas, France, has invented a biscuit of flour made of fish (*farine de poisson*), prepared like the sea biscuit. It forms a very nutritious and compact article of food, being four times as rich in albuminoid substances as beef, four and a half times as much as fresh codfish, and sixteen times as much as fresh milk. Besides, it has the advantage of being very rich in phosphates.—*Bulletin de la Société impériale Zoologique d'Acclimatation*.

THE PELICAN IN CAYUGA COUNTY, N. Y.—Some time during the spring of 1864, near a marsh on Cayuga Lake, two large birds were seen for several weeks, but one of them left a few days before the other was killed. None of the hunters had ever seen anything of the kind about here before. It proved to be a specimen of the white or rough-billed Pelican (*Pelicanus erythrorhynchus* Gmelin), in good condition, and its wings measured fully eight feet from tip to tip.

Prof. S. F. Baird, of the Smithsonian Institute, Washington, D. C., in speaking of this bird says:—

The male has on the upper mandible [upper part of the bill] a thin, elevated, bony process, about one inch high, and extended towards the end for three or four inches. The female differs in not having the bony projection on the upper mandible. It lives throughout the United States; rare on the coast of the Middle and Northern States; found as far north as the 61st parallel. This species breeds in the fur countries, generally selecting inaccessible places in the neighborhood of waterfalls. They also inhabit throughout the Rocky Mountains and in California. In winter they are very abundant on our Southern coast, from Texas to Florida. They remain inactive on sand-bars most of the day, procuring their food about sunrise, and again just before sunset. They swim buoyantly, and while feeding are very active in their movements; on such occasions they do not dive, but

secure their food by thrusting the head under water, but not keeping it below the surface for any length of time. The peculiar bony process on the ridge of the upper mandible appears to be used for the purpose of defence, when combating with their rivals; in some old individuals it is much abraded and worn, apparently caused by many and severe contests.

Audubon thus speaks of its habits :—

Ranged along the margins of the sand-bar, in broken array, stand a hundred heavy-bodied Pelicans, pluming themselves. The gorged Pelicans patiently wait the return of hunger. Should one chance to gape, all, as if by sympathy, in succession open long and broad mandibles, yawning lazily and ludicrously.

I one afternoon observed a number of White Pelicans swimming against the wind and current, with their wings partially extended, their neck stretched out, the upper mandible alone appearing above the surface, while the lower must have been used as a scoop-net, as I saw it raised from time to time, and brought to meet the upper, when the whole bill immediately fell to a perpendicular position, the water was allowed to run out, and the bill being again raised upwards, the fish was swallowed. After thus swimming for about a hundred yards in an extended line, and parallel to each other, they would rise on the wing, wheel about, and re-align at the place where their fishing commenced, when they would repeat the same actions. The number of small fishes destroyed by a single bird is quite extraordinary. On opening one we found in its stomach several hundreds of fishes, of the size of what are usually called minnows. Its flesh is rank, fishy, and nauseous. The female is rather smaller than the male, and, in as far as I am warranted by the examination of several individuals in stating, is destitute of the horny crest of the upper mandible.

Judging from the bony process on the bill, which was about one inch high and two and a half inches long, I concluded, from the description given above, that this bird was a male; but upon dissection, I was much surprised to find the specimen a female.

The œsophagus contained two flat-fish (Bream or Pumpkin-seed, *Pomotis vulgaris*) in quite a perfect condition, one of which was six and the other eight inches in length. There were also the remains of two bull-heads, which must have been eight or ten inches in length. I found no small fish. Mr. Cave, who shot the bird, saw her fishing, as described by Audubon.—W. J. BEAL.

CURIOUS MODE OF GESTATION IN FISH.—Dr. W. Turner, of Edinburgh, described the very curious method of gestation in a new fish, belonging to the genus *Arius*, which he had received from Ceylon. The female fish deposits her eggs, which are then taken into the mouth of the male, who swims about with them until they hatch. Dr. Turner's correspondent had been very careful to avoid any mistake or imposition in the matter. The fish lived in stagnant pools in marshy ground, where they were caught in large numbers by the natives. Dr. Günther, of the British Museum, said it was very remarkable that in South America there was a fish almost exactly like that which Dr. Turner had described; and Agassiz had lately described several others from the Amazon, possessing this curious method of gestation; none, however, had been observed in Africa.—*Quarterly Journal of Science, London.*

HABITS OF THE BITTERN.—I notice some statements respecting the breeding habits of the Bittern (*Botaurus lentiginosus*) in the lately published work of Mr. Samuels, on the Ornithology and Oölogy of New England, which are entirely at variance with my experience. He says that these birds build in bushes or low trees or tufts of grass; that the nest is of twigs, grass, and a few leaves; and that they breed in communities, a dozen or more nests being often found in the space of a few rods.

The few eggs that I have found have all been on the ground—the bare ground—among thick tufts of lambkill, on the “Fowl Meadows,” which skirt the upper part of the river Neponset; nor have I been able to find more than one nest on ten acres, though I have searched most carefully. I make these remarks because I think no part of the bird’s history ought to go unnoticed; and because I am convinced that he, who should expect to find a community of stick-built bittern’s nests on bushes or trees in this vicinity, would be disappointed.

South Canton, Mass.

W. E. ENDICOTT.

GEOLOGY.

THE MIOCENE TERTIARY FLORA OF NORTH GREENLAND.—Different voyagers have, from time to time, brought from Greenland, and lodged in various museums in Britain and Ireland, rich collections of fossil plants, all of which have been submitted to Professor O. Heer, a Swiss Naturalist. They were all found 1,080 feet above the sea, on a steep hill, at Atanekerdluk, opposite the Isle of Disco, in lat. 70° N. A total of sixty-six species have been recognized, and from them and their associated facts, the author infers that they must have grown where they were found; that they belong to a Miocene flora rich in species, at least some of which extended to still higher latitudes; that in the Miocene epoch the climate of North Greenland was warmer than it is at present by fully 16° C., or 28° 8° F.; and he thinks that “we could not by any rearrangement of land and water produce for the northern hemisphere a climate which would explain the phenomena in a satisfactory manner.” “We must admit,” he adds, “that we are face to face with a problem whose solution in all probability must be attempted, and we doubt not completed by the astronomer.”—*Quarterly Journal of Science, London.*

MICROSCOPY.

PHOSPHORESCENT ENTOMOSTRACA.—Minute Crustaceans, belonging to this order and allied to the genus Cypridina, were discovered in